

## Specifications METES 340 REF



**System concept** METES 340 REF is a three-phase reference standard. The device is equipped with two current inputs for direct measurement per phase, with ranges of 12 A and 120 A respectively, and an additional input for the connection of error-compensated current clamps. Configurable impulse inputs allow the connection of all commonly used scanning heads. The devices are operated and controlled using just four function keys and a jog dial, or an external PC. The device is also equipped with a special interface for connecting an EPOS 300 power source.

Analog inputs		METES 340 REF (0.05)	METES 340 REF (0.02)
<b>Direct current measurement</b>	Current range	5 mA to 12 A	
	Internal ranges	120 mA – 800 mA – 2 A – 6 A – 12 A	
	Measurement error	$\leq \pm 0.05\%^{1)}$ of range $\leq \pm 0.05\%^{2)}$ of reading	$\leq \pm 0.02\%^{1)}$ of range $\leq \pm 0.02\%^{2)}$ of reading
	Current range	5 mA to 120 A	
	Internal ranges	200 mA – 500 mA – 1,2 A – 4 A – 8 A – 20 A – 60 A – 120 A	
	Measurement error	$\leq \pm 0.05\%^{3)}$ of range $\leq \pm 0.05\%^{4)}$ of reading	$\leq \pm 0.02\%^{3)}$ of range $\leq \pm 0.02\%^{4)}$ of reading
<b>Current measurement (100 A current clamps)</b>	Current range	100 mA to 100 A	
	Measurement error	$\leq \pm 1.0\%^{5)}$ $\leq \pm 0.5\%^{6)}$	
<b>Voltage measurement</b>	Voltage range	Up to 480 V	
	Internal ranges	60 V – 120 V – 240 V – 480 V	
	Measurement error	$\leq \pm 0.02\%^{7)}$ of range $\leq \pm 0.02\%^{8)}$ of reading	
<b>Phase angle</b>	Measurement error	$\leq \pm 0.01^{\circ 2), 4)}$	
<b>Frequency</b>	Frequency range of measurement quantities	40 to 65 Hz	
	Measurement error	$\leq \pm 0.01 \text{ Hz}^{2), 4)}$	
<b>Measurement error for power and energy<sup>8), 9)</sup></b>	12 A range	$\leq \pm 0.05\%^{1)}$ of range $\leq \pm 0.05\%^{2)}$ of reading	$\leq \pm 0.02\%^{1)}$ of range $\leq \pm 0.02\%^{2)}$ of reading
	120 A range	$\leq \pm 0.05\%^{3)}$ of range $\leq \pm 0.05\%^{4)}$ of reading	$\leq \pm 0.02\%^{3)}$ of range $\leq \pm 0.02\%^{4)}$ of reading
	100 A current clamps	$\leq \pm 1.0\%^{5)}$ $\leq \pm 0.5\%^{6)}$	

<sup>1)</sup> 5 to 120 mA

<sup>3)</sup> 5 to 200 mA

<sup>5)</sup> 100 to 500 mA

<sup>7)</sup> < 40 V

<sup>9)</sup> Measurement error in relation to apparent power

<sup>2)</sup> 120 mA to 12 A

<sup>4)</sup> 200 mA to 120 A

<sup>6)</sup> 500 mA to 100 A

<sup>8)</sup> 40 to 480 V

<b>Impulse inputs</b>	Number	6
	Activation range	5 to 12 VDC and 12 to 24 VDC
	Protection (input)	Polarity protection and galvanic isolation via opto-couplers
	Power supply	12 VDC/4 W und 24 VDC/2 W
<b>Impulse outputs</b>	Protection (power supply)	Overload and short-circuit
	Functionality	Power-proportional
	Number	6
	Output level	5 VDC
	Output frequency	Max. 200 kHz
<b>Binary inputs</b>	Protection	Polarity protection and galvanic isolation via opto-couplers
	Number	4
	Activation range	24 to 300 VDC
	Max. input level	300 VDC
<b>Binary outputs</b>	Protection	Transient protection, polarity protection and galvanic isolation via opto-couplers
	Number	3
	Rated sw. capacity	0.5 A at 125 VAC 2 A at 30 VDC
	Max. sw. capacity	250 VAC, 2 A, 62 VA 220 VDC, 2 A, 60 W
	Protection	Potential-free output relays

**Complete system** Operation, system control, data storage and evaluation using a standard, external Windows PC. The 4 function keys and integrated LCD screen can be used to display important measurement values and carry out measurements without a PC.

<b>Operational interface</b>	METES system software for Windows® 2000/XP/Vista	
<b>Power supply</b>	Rated voltage 90 to 264 VAC, 47 to 63 Hz Power consumption 60 W	
<b>Connections</b>	All connection points are located on the front panel. 4 mm/6 mm safety banana connectors or multi-pole system sockets are used.	
<b>Interfaces</b>	RS232, USB, Ethernet (optional), interface for connection to an EPOS 300 external power source	
<b>Display</b>	Alphanumeric LCD screen, 4 x 20 characters	
<b>Housing</b>	Portable 19"/3 HU high case, the carrying handle can also be used as a stand Dimensions (W x H x D) without stand: 470x162x316 mm Weight: 11 kg	
<b>Measuring modes</b>	2-, 3- and 4-wire (active, apparent and reactive power)	
<b>Measurements</b>	Measurement and display of voltages, currents, frequency, phase angle and power factor; power quantities (W, var, VA) per phase and total quantities.	
<b>Environment</b>	Operating temperature	0 to 50°C
	Storage temperature	-20 to 60°C
	Relative humidity	5 to 90%, non-condensing
	Protection class	IP20
	Safety standard	EN 61010-1 300 V~CAT II
	EMC emissions	EN 50081-2 industrial
	Susceptibility	EN 50082-2 industrial
	Influence of power supply	None
	Ambient temperature	20 to 25°C
	Temperature drift	Voltage ≤ 10 ppm/K Current ≤ 40 ppm/K Power ≤ 30 ppm/K
Influence of external fields	None	