

## **8. Technical Data**

### **8.1. Specifications**


Display	TFT-LCD-display with max display of 6000
Overload protection	on all ranges
Operating Temperature	0...40°C < 75 % RH
Storage Temperature	< 2000 m max.
Altitude	-10...+60°C < 80 % RH
Accuracy temperature	18...28°C

### **8.2. General Specifications**

Enclosure	Double molded, waterproof
Shock (Drop Test)	6.5 feet (2 meters)
Diode Test	Test current of ca.1 mA (P3445) / 1.5mA (P3443), open circuit voltage 3V (P3445) / 2.7V (3443) typical
Continuity Check	Audible signal will sound if the resistance is less than 30 $\Omega$
Temperature Sensor	Requires type K thermocouple
Input Impedance	>10M $\Omega$ ACV/DCV
ACV Bandwidth	40Hz ~ 400Hz
Overrange indication	"OL." is displayed
Auto Power Off	approx 15 min
Polarity	Automatic (no indication for positive); Minus (-) sign for negative
Measurement Rate	3 times per second, nominal

#### **8.2.1 Extended Specifications for P3445**

Input Impedance LowZ	~ 3 k $\Omega$
AC Measurement	True RMS
ACV Bandwidth	40Hz to 1000Hz

AC True RMS or current (P3445 only)	The term stands for “Root-Mean-Square,” which represents the method of calculation of the voltage value. Average responding multimeters are calibrated to read correctly only on sine waves and they will read inaccurately on non-sine wave or distorted signals. True rms meters read accurately on either type of signal.
Low Battery Indication	“  ” is displayed if battery voltage drops below operating voltage
Battery	4 x 1,5V AAA battery
Fuse	mA, $\mu$ A ranges: 0.8A/1000V (6,3x32mm) ceramic fast blow A-range: 10A/1000V (10x32mm) ceramic fast blow
Safety	This meter is intended for origin of installation use and protected, against the users, by double insulation per EN61010-1 and IEC61010-1 2 <sup>nd</sup> Edition (2001) to Category IV 600V and Category III 1000V; Pollution Degree 2. The meter also meets UL 61010-1, 2 <sup>nd</sup> Edition (2004), CAN/CSA C22.2 No. 61010-1 2 <sup>nd</sup> Edition (2004), and UL 61010B-2-031, 1st Edition (2003)
Dimensions (W x H x D)	80 x 175 x 50 mm
Weight	400 g

### **8.3. Specifications**

#### **AC Voltage**

Range	Resolution	P 3443	P 3445
6 V	0,001V	$\pm 1\% + 5 \text{ dgt.}$	$\pm 1\% + 5 \text{ dgt.}$
60 V	0,01V	$\pm 1.2\% + 5 \text{ dgt.}$	
600 V	0,1V		
1000 V	1V	$\pm 1.5\% + 5 \text{ dgt.}$	$\pm 1.2\% + 5 \text{ dgt.}$
Bandbreite		40 ... 400Hz	40 ... 1000 Hz

Genauigkeit bei >5% des Messbereiches

Eingangsimpedanz: 10 M $\Omega$

#### **DC Voltage**

Range	Resolution	P 3443	P 3445
600 mV*	0,1 mV	$\pm 1\% + 8 \text{ dgt.}$	$\pm 0.5\% + 8 \text{ dgt.}$
6 V	0,001 V	$\pm 1\% + 3 \text{ dgt.}$	$\pm 0.8\% + 8 \text{ dgt.}$
60 V	0,01 V		
600 V	0,1 V		
1000 V	1 V	$\pm 1.2\% + 3 \text{ dgt.}$	$\pm 1\% + 3 \text{ dgt.}$

Input Impedance: 10 M $\Omega$

\*When using the relative mode (REL) to compensate for offsets.

#### **DCV+ACV**

Range	Resolution	P 3445
6 V	0,001V	$\pm 1\% + 20 \text{ dgt.}$
60 V	0,01V	
600 V	0,1V	
1000 V	1V	$\pm 1.5\% + 5 \text{ dgt.}$
Bandwidth		40 ... 400 Hz

Accuracy at >5% of range

Input Impedance: 10 M $\Omega$

### Resistance Measurement

Range	Resolution	P 3443	P 3445
600 $\Omega$ *	0,1 $\Omega$	$\pm 1.5\%$ $+ 5$ dgt.	$\pm 1.5\%$ + 5 dgt.
6 k $\Omega$	0,001 k $\Omega$		
60 k $\Omega$	0,01 k $\Omega$		
600 k $\Omega$	0,1 k $\Omega$		
6 M $\Omega$	0,001 M $\Omega$		
60 M $\Omega$	0,01 M $\Omega$	$\pm 2\%$ + 10 dgt	$\pm 2\%$ + 10 dgt.

### Temp. Measurement

Range	Resolution	P 3443	P 3445
-20°C ~ 780°C	0,1 °C	$\pm 3\%$ + 5°C	$\pm 1\%$ + 5°C
-4°C ~ 1400°F	0,1 °F	$\pm 3\%$ + 9°F	$\pm 1\%$ + 9°F

### Capacitance

Range	Resolution	P 3443
40.00 nF	0,1 nF	$\pm 5\%$ + 35 dgt.
400.0 nF	1 nF	$\pm 3\%$ + 5 dgt.
4.000 $\mu$ F	0,001 $\mu$ F	
40.00 $\mu$ F	0,01 $\mu$ F	
400.0 $\mu$ F	0,1 $\mu$ F	
4000 $\mu$ F	1 $\mu$ F	$\pm 5\%$ + 5 dgt.

Range	Resolution	P 3445
60.00 nF	0,1 nF	$\pm 5\%$ + 35 dgt.
600.0 nF	1 nF	$\pm 3\%$ + 5 dgt.
6.000 $\mu$ F	0,001 $\mu$ F	
60.00 $\mu$ F	0,01 $\mu$ F	
600.0 $\mu$ F	0,1 $\mu$ F	
6000 $\mu$ F	1 $\mu$ F	$\pm 5\%$ + 5 dgt.

### Frequency

Range	Resolution	Accuracy
9.999 Hz	0,001 Hz	± 1,0% + 5 dgt.
99.99 Hz	0,01 Hz	
999.9 Hz	0,0001 kHz	
9.999 kHz	0,001 kHz	
Empfindlichkeit: > 8Vrms		

### Duty Cycle - P3445

Range	Resolution	Accuracy
20 ... 80%	0.1 %	± 1,2% + 2 dgt.
> 8Vrms / Pulsewidth: 0.1 ... 100mS / 5 Hz ... 1kHz		

### Duty Cycle - P3443

Range	Resolution	Accuracy
1 ... 99%	0.1 %	± 1,2% + 2 dgt.

### DC Current

Range	Resolution	P 3443	P 3445
600 µA	0,1 µA	± 1,2% + 3 dgt.	± 1,2% + 3 dgt.
6000 µA	1 µA		
60 mA	0,01 mA		
600 mA	0,1 mA	± 1,5% + 3 St.	± 1,5% + 3 St.
10 A	0,01 A		

### AC Current

Range	Resolution	P 3443	P 3445
600 µA	0,1 µA	± 1.5% + 4 dgt.	± 1% + 3 dgt.
6000 µA	1 µA		
60 mA	0,01 mA		
600 mA	0,1 mA	± 2% + 5 dgt.	± 2% + 8 dgt.
10 A	0,01 A		
Bandwidth		40 ... 400Hz	40 ... 400Hz

Accuracy at >5% of range