

TECHNI-PRO

Product Data Sheet

True-RMS Industrial Multimeter with Bluetooth

TNP278



Features

- Functions include AC/DC voltage and current, resistance, capacitance, frequency, duty cycle, continuity, temperature, and more
- Maximum voltage: 1000V AC/DC
- Maximum current: 10A AC/DC
- 50,000-count digital display
- Bluetooth connectivity for use with the Techni-Pro app
- Stores up to 9999 readings
- Triple LCD display with bar graph
- Able to measure microamps
- 4-20mA process loop measurements with % reading
- CAT III 1000V, CAT IV 600V

Product Information

Connectivity matters, and the Techni-Pro **TNP278** understands that. With built-in Bluetooth technology, the TNP278 multimeter seamlessly integrates with the Techni-Pro app. Now, your measurements are not confined to the device - monitor, record, and analyze readings effortlessly on your device.


Included

- Meter
- Test leads
- Battery
- K-type thermocouple and adapter
- Carrying case
- Input caps
- Instruction manual
- CD

Accessories

- TNPAL286 alligator clips
- 20001415 fuse (10A/1000V)
- 20001416 fuse (500mA/1000V)

General Specifications

Insulation	Class 2, double-insulated
Enclosure	Double molded, waterproof
Shock (Drop Test)	6.5 feet (2 meters)
Diode Test	Test current of 0.9mA maximum, open circuit voltage 2.8V DC typical
Continuity Check	Audible signal will sound if the resistance is less than 35Ω (approx.), Test current <0.35mA
PEAK	Captures peaks > 1ms
Temperature Sensor	Requires type K thermocouple
Low Battery Indication	"  " is displayed if battery voltage drops below operating voltage
Battery	One 9 volt (NEDA 1604) battery
Input Impedance	>10MΩ VDC & >9MΩ VAC
AC Response	True RMS
AC True RMS	The term stands for "Root-Means-Square," which represents the method of calculation of the voltage or current 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.
ACV Bandwidth	50Hz to 100kHz
Crest Factor	≤3 at full scale up to 500V, decreasing linearly to ≤1.5 at 1000V
Display	50,000 count backlit liquid crystal with bar-graph
Over Range Indication	"OL" is displayed
Polarity	Automatic (no indication for positive); Minus (-) sign for negative
Measurement Rate	10 times per second, nominal
Auto Power Off	15 minutes (approximately) with disable feature
Fuses	mA, μA ranges; 0.5A/1000V ceramic fast blow A range; 10A/1000V ceramic fast blow
Operating Temperature	5°C to 40°C (41°F to 104°F)
Storage Temperature	-20°C to 60°C (-4°F to 140°F)
Operating Humidity	Max 80% up to 31°C (87°F) decreasing linearly to 50% at 40°C (104°F)
Storage Humidity	<80%
Operating Altitude	7000 ft (2000 meters) maximum

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Accuracy Specifications

DC Voltage		
Range	Resolution	Accuracy
50mV	0.001mV	$\pm(0.05\% + 20d)$
500mV	0.01mV	
5V	0.0001V	$\pm(0.025\% + 3d)$
50V	0.001V	
500V	0.01V	$\pm(0.03\% + 3d)$
1000V	0.1V	

DC Current		
Range	Resolution	Accuracy
500 μ A	0.01 μ A	$\pm(0.1\% + 20d)$
5000 μ A	0.1 μ A	$\pm(0.1\% + 5d)$
50mA	0.001mA	$\pm(0.1\% + 20d)$
500mA	0.01mA	$\pm(0.2\% + 5d)$
10A	0.001A	$\pm(0.3\% + 10d)$

(20A: 30 sec max with reduced accuracy)

Input Protection: 1000V AC RMS or 1000V DC

AC Voltage (AC + DC)					
Range	Resolution	Accuracy			
		45 to 1000 Hz	1 to 10k Hz	10 to 100K HZ	100 to 150K HZ
50mV	0.001mV	$\pm(0.5\% + 30d)$	$\pm(1\% + 30d)$	$\pm(4\% + 40d)$	Not spec'd
500mV	0.01mV	$\pm(1\% + 50d)$	$\pm(2\% + 50d)$	$\pm(5\% + 50d)$	Not spec'd
5V	0.0001V	$\pm(0.5\% + 30d)$	$\pm(1\% + 30d)$	$\pm(4\% + 40d)$	Not spec'd
50V	0.001V	$\pm(1\% + 50d)$	$\pm(2\% + 50d)$	$\pm(5\% + 50d)$	Not spec'd
500V	0.01V	$\pm(0.8\% + 30d)$	$\pm(1.2\% + 30d)$	Not spec'd	Not spec'd
1000.0V	0.1V	$\pm(1\% + 50d)$	$\pm(2\% + 80d)$	Not spec'd	Not spec'd

All AC voltage ranges are specified from 5% of range to 100% of range.

AC Current (AC + DC)					
Range	Resolution	Accuracy			
		45 to 1000 Hz	1 to 10k Hz	10 to 100K HZ	100 to 150K HZ
500 μ A	0.01 μ A	$\pm(0.6\% + 30d)$ $\pm(1\% + 50d)$	$\pm(1\% + 30d)$ $\pm(2\% + 50d)$	$\pm(4\% + 40d)$ $\pm(5\% + 50d)$	Not spec'd
5000 μ A	0.1 μ A	$\pm(0.6\% + 30d)$ $\pm(1\% + 50d)$	$\pm(1\% + 30d)$ $\pm(2\% + 50d)$	$\pm(4\% + 40d)$ $\pm(5\% + 50d)$	Not spec'd
50mA	0.001mA	$\pm(0.6\% + 30d)$ $\pm(1\% + 50d)$	$\pm(1\% + 30d)$ $\pm(2\% + 50d)$	$\pm(4\% + 40d)$ $\pm(5\% + 50d)$	Not spec'd
500mA	0.01mA	$\pm(0.6\% + 30d)$ $\pm(1\% + 50d)$	$\pm(1.2\% + 30d)$ $\pm(2\% + 50d)$	$\pm(4\% + 40d)$ $\pm(5\% + 50d)$	Not spec'd
10A	0.001A	$\pm(1.0\% + 30d)$ $\pm(2\% + 50d)$	$\pm(1.5\% + 30d)$ $\pm(2\% + 50d)$	Not spec'd	Not spec'd

(20A: 30 sec max with reduced accuracy)

All AC voltage ranges are specified from 5% of range to 100% of range (full scale) if non-sine wave in the wave crest less than 3.0.

Note: Accuracy specifications consist of two elements:

- (% reading) -This is the accuracy of the measurement circuit.
- (+ digits) -This is the accuracy of the analog to digital converter.

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Accuracy Specifications

Resistance		
Range	Resolution	Accuracy
50Ω	0.001Ω	± (0.2% + 20 d)
500Ω	0.01Ω	± (0.08% + 10 d)
5kΩ	0.0001kΩ	
50kΩ	0.001kΩ	± (0.08% + 3 d)
500kΩ	0.01kΩ	
5MΩ	0.001MΩ	± (0.2% + 10 d)
50MΩ	0.001MΩ	± (2% + 20 d)

Capacitance		
Range	Resolution	Accuracy
5nF	0.001nF	
50nF	0.01nF	± (1.5% + 5 d)
500nF	0.1nF	
5μF	0.001μF	
50μF	0.01μF	± (1.5% + 5 d)
500μF	0.1μF	
5mF	0.001mF	± (3% + 30 d)
50mF	0.01mF	

Duty Cycle		
Range	Resolution	Accuracy
0.1 to 99.9%	0.01%	± (1.2% + 2 digits)

Pulse width: 100μs-100ms; Frequency: 5Hz to 150kHz

Note: Accuracy specifications consist of two elements:

- (% reading) -This is the accuracy of the measurement circuit.
- (+ digits) -This is the accuracy of the analog to digital converter.

Frequency (Electronic)		
Range	Resolution	Accuracy
50Hz	0.001Hz	
500Hz	0.01Hz	
5kHz	0.0001kHz	
50kHz	0.001kHz	± (0.02% + 3 d)
500kHz	0.01kHz	
5MHz	0.0001MHz	
50MHz	0.001MHz	
100MHz	0.01MHz	Not specified

Sensitivity: 0.8V rms min. @ 20% to 80% duty cycle and <100kHz; 5V rms min @ 20% to 80% duty cycle and > 100kHz.

Frequency (Electrical)		
Range	Resolution	Accuracy
40.00HZ-10KHz	0.01HZ-0.001KHz	± (0.1%)

Sensitivity: 0.02Vrms, 20uArms

Temperature (Type -K)		
Range	Resolution	Accuracy
-58° to 2462°F	0.1°F	± (0.5% + 4.5°F)
-50° to 1350°C	0.1°C	± (0.5% + 2.5°C) (probe accuracy not incl.)

4-20mA%		
Range	Resolution	Accuracy
-25 to 125%	0.01%	± 50 digits

0mA=-25%, 4mA=0%, 20mA=100%, 24mA=125%

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