TECHNI-PRO

Product Data Sheet

True-RMS Industrial Multimeter with Bluetooth, Data Logging and Trend Capture

TNP388

Features

- True RMS industrial multimeter
- 50,000-count color display (320 x 240)
- Logging function with trend capture for easy review of data
- Bluetooth connectivity for use with the Techni-Pro app
- Peak capture (record transients as fast as 250µs)
- 100kHz bandwidth (voltage and current)
- Low pass filter
- 4-20mA process loop measurements with percent reading
- IP67 rating - double molded plastic housing
- CAT IV 600V, CAT III 1000V

Product Information

Choose the Techni-Pro **TNP388** for a true RMS industrial multimeter experience that goes beyond the ordinary. With advanced features, high-resolution display, and durable construction, it's time to elevate your precision in every measurement. Trust Techni-Pro for accuracy that stands the test of industry demands.

Included

- Multimeter
- Test leads
- Type-K thermocouple and adapter
- Charging cord
- CD
- USB drive
- Input caps
- Instruction manual

Accessories

- TNPAL286 alligator clips
- TNPBG1 bag
- 20001414 fuse (800mA/1000V)
- 20001415 fuse (10A/1000V)

General Specifications

Enclosure	Double molded, waterproof
Shock (Drop Test)	6.5 feet (2 meters)
Diode Test	Test current of 0.9mA maximum, open circuit voltage 3.2V DC typical
Continuity Check	Audible signal will sound if the resistance is less than 25Ω (approx.), Test current <0.35mA
PEAK	Captures peaks > 1ms
Temperature Sensor	Requires type K thermocouple
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 100000Hz
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
Auto Power Off	5-30 minutes (approximately) with disable feature
Polarity	Automatic (no indication for positive); Minus (-) sign for negative
Measurement Rate	20 times per second, nominal
Low Battery Indication	"▯" is displayed if battery voltage drops below operating voltage
Fuses	Fuses are FF 0. 8A/1000V+FF 10A/1000V
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
Safety	This meter is intended for origin of installation use and protected, against the users, by double insulation per EN61010-1 and IEC61010-1 2nd Edition (2001) to Category IV 600V and Category III 1000V; Pollution Degree 2. The meter also meets UL 61010-1 2nd Edition (2004, CAN/CSA C22.2 No. 61010-1 2nd Edition (2004) and UL 61010B-2-031 1st Edition (2003)
Bluetooth Specification	Version 2.0+EDR, Frequency range 2400 MHz ... 2483.5 MHz. (ISM-Band), Guard band 2 MHz < F < 3.5 MHz. Modulation method GFSK, 1 Mbps, 0.5 Gaussian; Receiving signal range -82 to -20 dBm; Transmission power Minimum: -18dBm to +4 dBm Diameter: 20.0mm; High 3.2mm; Typical Weight
Built-in Lithium Battery	3.0 grams (0.10 oz.); Designation: ANSI / NEDA-5004LC, IEC-CR2032; Normal Voltage: 3.0 Volts; Typical Capacity: 240 mAh; Storage 5 Year Chemical type: Lithium polymer, Standard: GB/T
Li-ion Battery	18287-2000; Normal voltage: 7.4 Volts; Charge up Voltage: 8.4 Volts; Typical Capacity: 2400 mAh. Cycle life: 500 times.

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Accuracy Specifications

DC Voltage

Range	Resolution	Accuracy
50mV[1]	0.001mV	± (0.05% + 20d)
500mV [1]	0.01mV	± (0.025% + 5d)
5V	0.0001V	
50V	0.001V	
500V	0.01V	± (0.05% + 5d)
1000V	0.1V	± (0.1% + 5d)

[1] When using the relative mode (REL Q) to compensate for offsets.

DC Current

Range	Resolution	Accuracy
500µA	0.01µA	± (0.1% + 20)
5000µA	0.1µA	
50mA	0.001mA	
500mA	0.01mA	± (0.15% + 20)
10A	0.001A	± (0.3% + 20)

(20A: 30 sec max with reduced accuracy)

AC Voltage

		Accuracy			
Range	Resolution	50 / 60 Hz	≤1KHz	≤5kHz	≤100KHZ[1]
50mV	0.001mV	± 0.3% + 25	± 1.0% + 25	± 3.0% + 25	± (5.0% + 40)
500mV	0.01mV				
5V	0.0001V				
50V	0.001V				± (6.0% + 40)
500V	0.01V		± 1.5% + 25	± 3.5% + 25	Unspecified
1000V	0.1V			Unspecified	

All AC voltage ranges are specified from 5% of range ot 100% of range
(1) upper 10% of range, and upper 30mv

(AC + DC)

		Accuracy	
Range	Resolution	< 1KHZ	< 10KHZ
50mV	0.001mV	± (1.0% + 25)	± (3.5% + 25)
500mV	0.01mV		
5V	0.0001V		
50V	0.001V		
500V	0.01V		
1000V	0.1V		Unspecified

Voltage ranges are specified from 5% of range to 100% of range

AC Current

		Accuracy
Range	Resolution	50 to 10000Hz
500µA	0.01µA	50 / 60 Hz (0.6% + 25) <1KHz (1.5% + 25) <10KHz (3% + 25)
5000µA	0.1µA	
50mA	0.001mA	
500mA	0.01mA	
10A	0.001A	

(20A: 30 sec max with reduced accuracy)

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

(AC + DC)

		Accuracy
Range	Resolution	0 to 1000Hz
500µA	0.01µA	± (1.0% + 25)
5000µA	0.1µA	
50mA	0.001mA	
500mA	0.01mA	
10A	0.001A	± (1.5% + 40)

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

Frequency (Electronic)		
Range	Resolution	Accuracy
50Hz	0.001Hz	± (0.01% + 10)
500Hz	0.01Hz	
5kHz	0.0001kHz	
50kHz	0.001kHz	
500kHz	0.01kHz	
5MHz	0.0001MHz	
10MHz	0.001MHz	

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

Capacitance		
Range	Resolution	Accuracy
5nF(1)	0.001nF	± (2% + 40)
50nF (1)	0.01nF	
500nF	0.1nF	
5µF	0.001µF	± (2% + 40)
50µF	0.01µF	
500µF	0.1µF	± (5% + 40)
5mF	0.001mF	
50mF	0.01mF	

(1) With a film capacitor or better, when using the relative mode (REL Q) to compensate for offsets.

Resistance		
Range	Resolution	Accuracy
50Ω(1)	0.001Ω	± (0.5% + 20)
500Ω(1)	0.01Ω	± (0.05% + 10)
5kΩ	0.0001kΩ	
50kΩ	0.001kΩ	
500kΩ	0.01kΩ	± (0.1% + 10)
5MΩ	0.0001MΩ	± (0.2% + 20)
50MΩ	0.001MΩ	± (2% + 20)

(1) When using the relative mode (REL Q) to compensate for offsets.

Frequency (Electrical)		
Range	Resolution	Accuracy
40.00HZ-10KHz	0.01HZ-0.001KHz	± (0.5%)

Sensitivity: 1V RMS

Duty Cycle		
Range	Resolution	Accuracy
0.1 to 99.9%	0.01%	± (1.2% + 2 digits)
Pulse width: 100µs - 100ms, Frequency: 5Hz to 150kHz		

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

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

Temperature (Type -K)		
Range	Resolution	Accuracy
-50˚ to 1000˚C	0.1˚C	± (1.0% + 2.5˚C)
-58˚ to 1832˚F	0.1˚F	± (1.0% + 4.5˚F) (probe accuracy not incl.)

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.