



# 4½ DIGIT 19999 COUNTS TRUE RMS DIGITAL MULTIMETER

**12 FUNCTIONS 33 RANGES**  
Model - 405



### FEATURES:

- Input warning beeper
- Auto Power Off
- Auto Polarity display
- Over range indication.
- Data Hold function
- Logic Test & Diode Continuity Test
- Duty Cycle function
- Low Battery indication
- Shock resistant & fire retardant casing
- CE approved

### GENERAL SPECIFICATION :

- \* Sensing : True RMS Sensing.
- \* Basic Accuracy :  $\pm(0.05\%rdg + 3\text{ dgts})$
- \* Display : 4½ digits, 19999 counts large LCD display with function and unit sign annunciators.
- \* Display Size : 17 mm
- \* Over range indication : "1" most significant digit blinks.
- \* Low battery indication : The "BAT" is displayed when the battery voltage drops below the operating level.
- \* Polarity : Automatic, (-) negative polarity indication.
- \* Auto power off : Meter automatically shuts down after approx.45 minutes of inactivity.
- \* Measurement rate : 2.5 times per second, nominal.
- \* Operating Temperature : 0°C to 50°C at < 70% R.H.
- \* Storage Temperature : -20°C to 60°C, 0 to 80 % R.H with battery removed from meter.
- \* Power : Single 9V battery.
- \* Dimension : 189 (H) x 87 (W) x 37 (D) mm
- \* Weight: Approx. 330g including battery.

## ELECTRICAL SPECIFICATIONS - 405

Accuracy is given as  $\pm(\%$  of reading + no. of digits) at 18°C to 28°C upto 75% R.H.

### LOGIC TEST

Threshold	
Logic1Hi(▲)	Logic 0 Low(▼)
2.8V $\pm$ 0.8V	0.8V $\pm$ 0.5V

Pulse Rise (min) : 10 Sec. Pulse Rep (max.) : 1Mpps  
Pulse Width (min) : 25 nS. Test Voltage : 5V DC  
Duty Cycle : >20% & <80%  
Frequency Response : 20MHz  
Indication : 40msec beep at logic 1 (Hi)  
Overload protection : 500V DC or AC rms

### DC VOLTAGE

Range	Resolution	Accuracy
200 mV	10 V	$\pm(0.05\%rdg + 3\text{ dgts})$
2 V	100 V	
20 V	1 mV	
200 V	10 mV	
1000 V	100 mV	

Input Impedance : 10M

Overload Protection : 500V DC / 350V rms on 200mV range, 1000V DC/750V AC rms on all other ranges

### AC VOLTAGE (TRUE RMS)

Range	Resolution	Accuracy(50Hz-500Hz)
200 mV	10 V	$\pm(1.0\%rdg + 10\text{ dgts})$
2 V	100 V	
20 V	1 mV	
200 V	10 mV	
750 V	100 mV	$\pm(2.0\%rdg + 20\text{ dgts})$

Input Impedance : 10M

Overload Protection : 500V DC / 350V rms on 200mV range, 1000V DC / 750V AC rms on all other ranges

Accuracy (500Hz TO 2kHz) :  $\pm(2.0\%rdg + 20\text{ dgts})$  for ranges 200mV, 2V, 20V, 200V. Unspecified for range 750V.

### DC CURRENT

Range	Resolution	Accuracy
200 A	10 nA	$\pm(0.5\%rdg + 5\text{ dgts})$
2 mA	100 nA	
20 mA	1 A	
200mA	10 A	
20 A*	1 mA	$\pm(2.0\%rdg + 10\text{ dgts})$

Burden Voltage : 300mV for 200 A, 2mA, 20mA, 600mV for 200mA & 800mV for 20A.

Overload Protection : 500mA / 600V fuse on mA inputs (fast blow ceramic fuse). 20A / 600V fuse on 20A inputs (fast blow ceramic fuse). \* 20A for 30 seconds maximum.

### ACCESSORIES :

Test leads pair, User's Manual, Battery installed, Carrying Case, Protective Holster .

### OPTIONAL ACCESSORIES :

Current Clamp CA 300, Current Clamp Adaptor CA500, CA1000, CA2000, High Voltage Probe PD-28.

### FREQUENCY

Range	Resolution	Accuracy
2 KHz	0.1 Hz	$\pm(0.5\%rdg + 3\text{ dgts})$
20 KHz	1 Hz	
200 KHz	10 Hz	

Input Impedance : 10M / 10pF

Sensitivity : 50mV rms (Sine Wave),

400mV rms at > 30% and < 70% duty cycle

Input Frequency : More than 10 Hz at pulse width > 2 sec.

Overload Protection : 500V DC or AC rms

### AC CURRENT (TRUE RMS)

Range	Resolution	Accuracy
200 A	10 nA	$\pm(0.8\%rdg + 10\text{ dgts})$
2 mA	100 nA	
20 mA	1 A	
200mA	10 A	
20 A*	1 mA	$\pm(2.5\%rdg + 10\text{ dgts})$

Burden Voltage : 300mV for 200 A, 2mA, 20mA,

600mV for 200mA & 800mV for 20A.

Overload Protection : 500mA / 600V fuse on mA inputs (fast blow ceramic fuse). 20A / 600V fuse on 20A inputs (fast blow ceramic fuse). \* 20A for 30 seconds maximum.

### CONTINUITY TEST

Range	Audible Indication	Response time
2 V	Less than 150	Approx. 500ms

Open Circuit Voltage : 3.3V DC typical

Overload Protection : 500V DC or AC rms

### RESISTANCE

Range	Resolution	Accuracy
200	10 m	$\pm(0.25\%rdg + 10\text{ dgts})$
2 K	100 m	
20 K	1	$\pm(0.15\%rdg + 3\text{ dgts})$
200 K	10	
2 M	100	$\pm(0.25\%rdg + 10\text{ dgts})$
20 M	1 K	

Overload Protection : 500V DC or AC rms

Open Circuit Voltage : 3.3V DC

### DIODE TEST

Range	Resolution	Accuracy
2 V	0.1mV	$\pm(0.5\%rdg + 1\text{ dgt})$

Test Current : 1.0mA

Open Circuit Voltage : 3.3V DC typical

Overload Protection : 500V DC or AC rms

### DUTY CYCLE

Range	Resolution	Pulse Width
0 - 90.0%	0.1%	> 10 sec.

Accuracy (5V logic) :  $\pm(2.0\%rdg + 10\text{ dgts})$

Overload Protection : 500V DC or AC rms

Frequency Range : 20Hz to 20KHz

All Specifications are subject to change without prior notice



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