

## HT12 DIGITAL MULTIMETER WITH AC/DC OPEN CLAMP SENSOR

HT12 is a pocket size digital multimeter with open clamp sensor ideal for the daily use. The fork current sensor and the test leads are welded to the instrument, making the use of HT12 extremely easy and convenient. HT12 is provided with 2x AAA 1,5V batteries and the user manual

### Functions

AC current 0 ÷ 60A  
DC current 0 ÷ 60A  
AC voltage 0 ÷ 600V  
DC voltage 0 ÷ 600V  
Resistance 0 ÷ 34MΩ  
Continuity test  
Current frequency 0 ÷ 10kHz  
Voltage frequency 0 ÷ 300kHz  
AutoPowerOff to save the battery  
Safety:  
IEC/EN61010-1, CAT II 600V, CAT III 300V  
Pocket size and heavy duty design  
Display: 3400 counts with analog bargraph  
Size (LxWxH): 128x87x21mm  
Weight: 210g



## HT603 POCKET DIGITAL MULTIMETER

HT603 is a digital multimeter, extremely compact and friendly in use. It is provided with carrying bag and test leads. The instrument carries out measurements of AC/DC voltage, resistance, continuity test, capacitance, frequency, duty cycle and diode test.

### Standard accessories

Test leads + batteries + user manual

### Functions

AC/DC voltage up to 600V  
Resistance up to 40MΩ  
Continuity test  
Frequency  
Duty cycle  
Capacitance  
Diode test  
Data HOLD  
Range Automatic/Manual  
Auto Power OFF after 30 minutes  
Safety:  
IEC/EN61010-1, CAT III 300V, CAT II 600V  
Display: LCD, 4 digits, 5000 counts  
Power supply: 2x1.5V battery type LR44  
Dimensions (LxWxH): 112x56x12mm  
Weight (batteries included): 115g



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## HT21-HT210 HANDHELD DIGITAL MULTIMETERS

HT21 and HT210 handheld digital multimeters realised according to CAT III 600V headed to every electrical installer.

### Accessories

HT21: test leads, battery, user manual, carrying bag

HT210: test leads, battery, user manual, carrying bag, type K probe.

FUNCTIONS	HT21	HT210
DC Voltage	•	•
AC Voltage	•	•
Resistance	•	•
Continuity test	•	•
Frequency	•	•
Capacitance	•	•
Diode test	•	•
Duty cycle (%)	•	•
Temperature with K probe	•	•
Backlight	•	•
Data HOLD	•	•
Relative measurements	•	•
Safety IEC/EN61010-1	•	•
Dimensions (LxWxH):	70x144x40	138x68x37
Weight	280g	210g



## HT410 PROFESSIONAL DIGITAL MULTIMETER PROTECTED AGAINST WRONG CONNECTIONS

HT410 is a digital multimeter for daily use. This instrument has been developed in compliance with IEC/EN 61010-1 safety standard with double insulation protection in CAT IV 600V and CAT III 1000V. HT410 is protected against wrong connections. The function selector switch is coupled with the Automatic terminal Blocking System (ABS) which allows access only to two correct sockets for each function. When the test leads are plugged-in, the terminal blocking systems prevents accidental switching to non-permissible functions.

### Functions

DC voltage 0 ÷ 1000V  
AC voltage 0 ÷ 1000V  
DC current 0 ÷ 10A  
AC current 0 ÷ 10A  
Frequency 0 ÷ 100kHz  
Duty cycle 2% ÷ 98%  
Resistance 0 ÷ 20MΩ  
Diode test  
Continuity test  
Capacitance 0 ÷ 30uF  
Temperature -200 ÷ 850°C with Pt 100 / Pt 1000 probes  
Safety: IEC/EN61010-1, CAT IV 600V, CAT III 1000V



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## 1. ELECTRICAL SPECIFICATIONS

Accuracy is calculated as  $\pm$  [% reading + (number of dgt) \* resolution] at 23°C $\pm$  2°C, 45  $\div$  55%RH, frequency: 45  $\div$  55Hz, waveform: sinusoidal

### DC VOLTAGE

Range	Resolution	Accuracy	Input impedance	Overload protection
30.00mV	0.01mV	$\pm(0.5\% + 3)$ (*)	> 10G $\Omega$ // <40pF	1000V DC/ACrms
300.0mV	0.1mV	$\pm(0.5\% + 3)$		
3.000V	0.001V	$\pm(0.25\% + 1)$	> 11M $\Omega$ // <40pF	
30.00V	0.01V		> 10M $\Omega$ // <40pF	
300.0V	0.1V			
1000V	1V	$\pm(0.35\% + 1)$		

(\*) = With zeroing feature . Add 35 dgt without zeroing feature

### AC VOLTAGE

Range	Resolution	Accuracy (*)	Input impedance	Overload protection
3.000V	0.001V	$\pm(0.75\% + 2)$ (10 $\div$ 300dgt)	> 11M $\Omega$ // <40pF	1000V DC/ACrms
30.00V	0.01V			
300.0V	0.1V	$\pm(0.75\% + 1)$ (> 300dgt)	> 10M $\Omega$ // <40pF	
1000V	1V			

(\*) Frequency range: 45  $\div$  65Hz ; For frequency within 65  $\div$  1kHz the accuracy is  $\pm(2.0\% + 3)$  for ranges 3  $\div$  300V

### DC CURRENT

Range	Resolution	Accuracy	Output voltage	Overload protection
300.0 $\mu$ A	0.1 $\mu$ A	$\pm(1.0\%+5)$ (>10dgt)	15mV	Rapid fuse 1.6A / 1000V
3.000mA	0.001mA	$\pm(1.0\%+2)$	150mV	
30.00mA	0.01mA	$\pm(1.0\%+5)$ (>10dgt)	650mV	
300.0mA	0.1mA	$\pm(1.0\%+2)$	1V	
3.000A	0.001A	$\pm(1.0\%+5)$ (>10dgt)	100mV	Rapid fuse 16A / 1000V
10.00A	0.01A	$\pm(1.0\%+2)$	270mV	

### AC CURRENT

Range	Resolution	Accuracy (*)	Output voltage	Overload protection
3.000mA	0.001mA	$\pm(1.5\%+2)$ (>10dgt)	150mV	Rapid fuse 1.6A / 1000V
300.0mA	0.1mA		1V	Rapid fuse 16A / 1000V
10.00A	0.01A		270mV	

(\*)Frequency range: 45  $\div$  65Hz ; For frequency within 65  $\div$  1kHz the accuracy is  $\pm(2.0\% + 3)$

### FREQUENCY

Range	Resolution	Accuracy	Sensitivity	Overload protection
300.0Hz	0.1Hz	$\pm(0.5\%+1)$	1.5V $\div$ 100V(3V)	$\leq$ 3kHz (1000V)
3.000kHz	1Hz		15V $\div$ 300V(30V)	$\leq$ 30kHz (300V)
30.00kHz	10Hz		150V $\div$ 1kV(300V)	$\leq$ 100kHz (30V)
100.0kHz	100Hz			





# HT410

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## CAT IV digital multimeter

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### DUTY CYCLE

Range	Resolution	Accuracy	Overload protection
2.0% ÷ 98.0%	0.1%	±5dgt (2Hz÷1kHz) ±5dgt/kHz (1k÷10kHz)	≤3kHz (1000V) ≤30kHz (300V) ≤100kHz (30V)

### RESISTANCE

Range	Resolution	Accuracy (*)	Output volatge	Overload protection
30.00Ω	0.01Ω	±(0.5% + 3) (*)	3.2V	1000V DC/ACrms
300.0Ω	0.1Ω	±(0.5% + 3)		
3.000kΩ	0.001kΩ	±(0.4% + 1)	1.25V	
30.00kΩ	0.01kΩ			
300.0 kΩ	0.1kΩ			
3.000MΩ	0.001MΩ	±(0.6% + 1)	3.2V	
30.00MΩ	0.01MΩ	±(2.0% + 1)		

(\*) = With zeroing feature . Add 35 dgt without zeroing feature

### DIODE TEST

Range	Resolution	Accuracy	Max open voltage	Overload protection
	1mV	±(0.25% + 1)	3.2V	1000VDC/ACrms

### TEST CONTINUITY

Range	Buzzer	Overload protection
	R<120Ω	1000VDC/ACrms

### CAPACITANCE

Range	Resolution	Accuracy	Overload protection
30.00nF	0.01nF	±(1.0% + 3) (*)	1000VDC/ACrms
300.0nF	0.1nF	±(1.0% + 3)	
3.000μF	0.001μF		
30.00μF	0.01μF	±(3.0% + 3)	

(\*) = With zeroing feature . Add 50 dgt without zeroing feature

### TEMPERATURE WITH Pt100 AND Pt1000 PROBES

Probe type	Range	Resolution	Accuracy (*)	Overload protection
Pt100	-200.0 ÷ 200°C	0.1°C	±(2°C + 5dgt)	1000VDC/ACrms
	200.0 ÷ 850.0°C		±(1.0 + 5)	
Pt1000	-100.0 ÷ 200°C		±(2°C + 2dgt)	
	200.0 ÷ 850°C		±(1.0 + 2)	

(\*) Accuracy of only meter without probes



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## 2. GENERAL SPECIFICATIONS

### Electrical characteristics:

Conversion:	mean value
NMRR Normal Mode Rejection Ratio:	> 50dB (DC), >100dB (AC 50/60Hz)
CMRR Common Mode Rejection Ratio:	>120dB (DC) >70dB (AC 3V,30V,300V), >60dB (AC 1000V)


### Display:

Characteristics:	3¼ LCD max 3100 points sign, decimal point and bargraph
Sample rate:	2 times/s, 1time/s ( $\Omega$ and $^{\circ}\text{C}$ ) for LCD display 20 times/s, 10 times/s ( $\Omega$ ) for bargraph
Overload indication:	<b>OL</b> or <b>-OL</b>

### Fuses:

Type of fuse:	FF 1.6A/1000V, 6.3x32mm, 10kA (300mA) FF 16A/1000V, 10x38mm, 30kA (10A)
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### Power supply:

Battery:	1x9V alkaline NEDA1604, JIS006P, IEC6F22
Low battery indication:	"  " symbol at display for battery voltage <7V
Battery life:	approx 220 hours (DCV, DCA), 80 hours (ACV, ACA)
Auto Power OFF:	after 10 minutes of idleness

### Mechanical characteristics:

Dimensions (L x W x H):	195 x 84 x 35mm
Weight (included battery):	350g

### Environmental conditions of use:

Reference temperature:	23 $\pm$ 2 $^{\circ}\text{C}$
Working temperature:	-10 $\div$ 50 $^{\circ}\text{C}$
Working humidity:	<75%HR
Storage temperature:	-25 $\div$ 70 $^{\circ}\text{C}$
Storage humidity:	<75%%HR

### Standard guidelines:

Safety:	IEC/EN 61010-1
Insulation:	double insulation
Pollution degree:	2
Category of measure:	CAT IV 600V, CAT III 1000V
Max height of use:	2000m

This product conforms to the prescriptions of the European directive on low voltage 2006/95/EEC and to EMC directive 2004/108/EEC

