

HT701

PROFESSIONAL MULTIMETER WITH INSULATION MEASUREMENT

HT701 is a professional instrument working as TRMS multimeter and insulation resistance tester with test voltage selectable among 50, 100, 250, 500, 1000VDC. HT701 can save test results into its internal memory and is designed according to safety standards IEC/EN61010-1 under CAT III 1000V and CAT IV 600V with double insulation protection. Each function can be selected pressing the front panel's keys. The instrument represents the best solution for applications in industrial automation.

FUNCTIONS

DC/AC TRMS voltage
DC/AC TRMS current
Insulation with test voltage up to 1000VDC
Resistance and continuity test
Frequency
Diode test
Capacitance
Temperature with K type probe
Internal memory for measurement storage
Data HOLD
MAX/MIN
Relative measurement
Automatic/Manual range
Backlight
Bargraph
Auto Power OFF

GENERAL SPECIFICATIONS

Display:	LCD, 10000 counts
Power supply:	4x1.5V alkaline batteries type AA LR6
Auto Power OFF:	after 20 minutes of idleness
Safety:	IEC/EN61010-1, IEC/EN61557-1-2
Measurement category:	CAT III 1000V, CAT IV 600V
Insulation:	double insulation
Pollution degree:	2
Max altitude:	2000m
Dimensions (LxWxH):	207x95x52mm
Weight (batteries included):	630g

TECHNICAL SPECIFICATIONS

DC Voltage
Measurement range: 0.01mV ÷ 1000V
Basic accuracy: ±(0.08%rdg + 2dgt)
AC TRMS Voltage
Measuring range: 0.01mV ÷ 1000V
Basic accuracy: ±(0.9%rdg + 3dgt)
AC TRMS Voltage - HFR mode
Measuring range: 0.001V ÷ 1000.0V
Basic accuracy: ±(0.9%rdg + 3dgt)
DC Current
Measuring range: 0.01mA ÷ 400.0mA
Basic accuracy: ±(0.2%rdg + 2dgt)
AC TRMS Current
Measuring range: 0.01mA ÷ 400.0mA
Basic accuracy: ±(1.5%rdg + 2dgt)
Resistance and continuity test
Measuring range: 0.1Ω ÷ 40.00MΩ
Basic accuracy: ±(0.5%rdg + 2dgt)
Buzzer: <30Ω
Diode test
Measuring range: 2.000V
Basic accuracy: ±(0.5%rdg + 2dgt)
Frequency
Measuring range: 0.01Hz ÷ 100.00kHz
Basic accuracy: ±(0.1%rdg + 5dgt)
Capacitance
Measuring range: 0.001μF ÷ 40.00mF
Basic accuracy: ±(1.2%rdg + 2dgt)
Temperature with K probe
Measuring range: -200.0°C ÷ 1200°C
-328.0°C ÷ 2192.0°F
Basic accuracy: ±(1.0%rdg + 1°C)
±(1.0%rdg + 18°F)
Insulation measurement
Test voltage: 50, 100, 250, 500, 1000VDC
Measuring range: 2.000MΩ ÷ 22.0GΩ
Basic accuracy: ±(1.5% rdg + 5dgt)

Insulation measurement

HT701
HR000701



ACCESSORIES	Code
Standard	
Pair of test leads	
Pair of crocodiles	
Probe for insulation measurement	PR701
K-type probe adapter	
K-type bead probe	
Magnet strap	
Rubber holster	
Batteries	
User manual	
Optional	
K-type probes	



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1. ELECTRICAL SPECIFICATIONS

Accuracy is indicated as $\pm [\%rdg + (\text{numbers of digits} \times \text{resolution})]$ at $23^\circ\text{C} \pm 5^\circ\text{C}$, $<80\%HR$

DC VOLTAGE

Range	Resolution	Accuracy	Overload protection
100.00mV	0.01mV	$\pm(0.08\%rdg+3dgt)$	1000VDC/ACrms
1000.0mV	0.1mV	$\pm(0.08\%rdg+2dgt)$	
10.000V	0.001V		
100.00V	0.01V		
1000.0V	0.1V		

Input impedance: $10M\Omega // <100pF$

AC TRMS VOLTAGE

Range	Resolution	Accuracy (50Hz ÷ 60Hz)	Accuracy (60Hz ÷ 5kHz)	Overload protection
100.00mV	0.01mV	$\pm(0.9\%rdg+3dgt)$	$\pm(0.9\%rdg+3dgt)$	1000VDC/ACrms
1000.0mV	0.1mV		$\pm(1.9\%rdg+3dgt)$	
10.000V	0.001V			
100.00V	0.01V			
1000.0V	0.1V		$\pm(0.9\%rdg+3dgt) (*)$	

(*) In the range: 60Hz ÷ 1kHz

Input impedance: $10M\Omega // <100pF$

For non-sinusoidal voltages add the herewith correction on accuracies:

Crest factor: 1.4 ÷ 2.0 → add 1.0%rdg to the accuracy

Crest factor: 2.0 ÷ 2.5 → add 2.5%rdg to the accuracy

Crest factor: 2.5 ÷ 3.0 → add 4.0%rdg to the accuracy

AC TRMS VOLTAGE – Mode HFR

Range	Resolution	Accuracy (50Hz ÷ 60Hz)	Accuracy (60Hz ÷ 5kHz)	Overload protection
10.000V	0.001V	$\pm(0.9\%rdg+3dgt)$	$\pm(2.9\%rdg+3dgt) (*)$	1000VDC/ACrms
100.00V	0.01V			
1000.0V	0.1V			

(*) In the range: 60Hz ÷ 500Hz

Input impedance: $10M\Omega // <100pF$

Cutoff frequency mode HFR: 1kHz

For non-sinusoidal voltages consider the indication of AC TRMS voltage

DC CURRENT

Range	Resolution	Accuracy	Overload protection
100.00mA	0.01mA	$\pm(0.2\%rdg+2dgt)$	max 440mA
400.0mA	0.1mA		

AC TRMS CURRENT

Range	Resolution	Accuracy (50Hz ÷ 5kHz)	Overload protection
100.00mA	0.01mA	$\pm(1.5\%rdg+2dgt)$	max 440mA
400.0mA	0.1mA		

For non-sinusoidal currents consider the indication of AC TRMS voltage





HT701

Rel. 1.02 of 19/03/12

Professional TRMS multimeter + Insulation meter

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RESISTANCE

Range	Resolution	Accuracy	Open voltage	Overload protection
1000.0Ω	0.1Ω	±(0.5%rdg+2dgt)	approx 0.25V	1000VDC/ACrms
10.000kΩ	0.001kΩ			
100.00kΩ	0.01kΩ			
1000.0kΩ	0.1kΩ			
10.000MΩ	0.001MΩ			
40.00MΩ	0.01MΩ			

CONTINUITY TEST

Range	Buzzer	Accuracy	Overload protection
400.0Ω	<30Ω	±(0.5%rdg+2dgt)	1000VDC/ACrms

Max open voltage: 1.2V

DIODE TEST

Range	Accuracy	Open voltage	Overload protection
2.000V	±(0.5%rdg+2dgt)	<2.5V	1000VDC/ACrms

Max test current: 0.6mA

FREQUENCY AC VOLTAGE/CURRENT

Range	Resolution	Accuracy	Minumum pulse duration	Overload protection
100.00Hz	0.01Hz	±(0.1%rdg+2dgt)	10μs	1000VDC/ACrms
1000.0Hz	0.1Hz			
10.000kHz	0.001kHz			
100.00kHz	0.01kHz			

Function	Range	Sensitivity (sinusoidal waveform)	
		10Hz ÷ 10kHz	10kHz ÷ 100kHz
AC mV	100.00mV	15.00mV	
	1000.0mV	150.0mV	
AC V	10.000V	1.500V	
	100.00V	3V	-
	1000.0V	30V	-
AC mA	100.00mA	15.00mA	-
	400.0mA	30mA	-

CAPACITANCE

Range	Resolution	Accuracy	Meas. Time	Overload protection
10.000nF	0.001nF	±(1.2%rdg+80dgt)	0.7s	1000VDC/ACrms
100.00nF	0.01nF	±(1.2%rdg+20dgt)		
1000.0nF	0.1nF	±(1.2%rdg+2dgt)		
10.000μF	0.001μF		3.75s	
100.00μF	0.01μF			
1000.0μF	0.1μF	±(1.2%rdg+20dgt)	7.5s	
10.000mF	0.001mF	±(1.2%rdg+80dgt)		
40.00mF	0.01mF	±(1.2%rdg+80dgt)		



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**TEMPERATURE WITH TYPE K PROBE**

Range	Resolution	Accuracy	Overload protection
-200.0°C ÷ 0.0°C	0.1°C	±(1.0%rdg+2°C)	1000VDC/ACrms
0.0°C ÷ 1200.0°C		±(1.0%rdg+1°C)	
-328.0°F ÷ 32.0°F	0.1°F	±(1.0%rdg+36°F)	
32.0°F ÷ 2192.0°F		±(1.0%rdg+18°F)	

INSULATION RESISTANCE

Test voltage	Measurement range	Accuracy	Overload protection
50V DC	2.000MΩ	±(1.5%rdg+5dgt)	600VDC/ACrms
	20.00MΩ		
	55.0MΩ		
100V DC	2.000MΩ		
	20.00MΩ		
	110.0MΩ		
250V DC	2.000MΩ		
	20.00MΩ		
	200.0MΩ		
	275MΩ		
500V DC	2.000MΩ		
	20.00MΩ		
	200.0MΩ		
	550MΩ		
1000V DC	2.000MΩ		
	20.00MΩ		
	200.0MΩ		
	2000MΩ		
	22.0GΩ	±(10%rdg+3dgt)	

Test voltage accuracy: +20%rdg, -0%rdg

Short-circuit current: 1mA

Minimum resistance (@ nominal current 1mA): 50kΩ (50V), 100kΩ (100V), 250kΩ (250V), 500kΩ (500V), 1MΩ (1000V)

Discharge time of measured object: <1s (C≤ 1μF)

Maximum capacitive load: 1μF

Voltage detection on circuit: test inhibited for voltages ≥30V AC/DC on inputs





2. GENERAL SPECIFICATIONS

Display:

- LCD display, 5 digit with maximum reading 10000 counts with sign, decimal point and bargraph
- Automatic polarity indication
- "OL" over range indication


Features:

- Data HOLD
- MAX/MIN/AVG for maximum, minimum and average values
- Auto Backlight for automatic activation of backlight
- LOCK for insulation measurement in continuous mode
- AUTOTEST for automatic detection of AC or DC measurements
- HFR for AC voltage measurement with 500Hz cut-off frequency
- SMOOTH for stability of insulation measurements
- Internal memory for saving/recall data
- RANGE for manual range selection
- REL for relative measurement (Resistance and Capacitance)
- Internal test on protection fuses
- Auto Power OFF after 20 minutes of idleness

Internal memory:

- Max 100 locations for each function

Low battery indication:

- The symbol  appears when the battery voltage is low

Environmental conditions:

- Working temperature/humidity: 0 °C ÷ 50 °C, <80%HR
- Storage temperature/humidity: -20 °C ÷ 60 °C, <80%HR

General information:

- Max height of use: 2000m
- Pollution degree: 2
- Insulation: double insulation

Power supply:

- 4 x 1.5V alkaline batteries type AA IEC LR6

Sizes:

- 207(L)x95(W)x52(H) mm

Weight (included batteries):

- 630g

Applied standards:

- Safety: IEC/EN61010-1, UL61010-1, IEC/EN61557-1, IEC/EN61557-2
- Measurement category: CAT IV 600V – CAT III 1000V

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

