multicomp PRO

Digital AC Millivolt Meter
MP700968

Introduction

MP700968 is suitable for measurements of RMS value voltage of Sine waveform, with a frequency range of 5Hz to 6MHz and voltage of 50μV~300V. The device has a switch function, between automatic, manual and automatic decimal positioning, as well as a 4.5 digit display. The measurement results can be displayed in the form of RMS, peak-peak value, voltage level, power level and other units. With 2 independent input channels, the results for two channels can be displayed at the same time. Clarity and direct vision makes them convenient in application. Input and output floated (to ground) makes them safe during operating. They may be used widely in universities, factories, military units, labs and scientific institutions.

MP700968 is a dual-input digital AC millivolt meter with USB interface.

Packing list

- Digital DC Millivolt meter 1
- Power cord 1
- Test Clip Leads 2
- CD (including User's Guide) + PC Software 1

Summary

Chapter 1 Quick Start

Help users learn MP700968 millivolt meter quickly.

Chapter 2 Basic Operation

Mainly introduce the basic operation of MP700968 millivolt meter.

Chapter 3 Programmable Interface

Mainly introduce the programmable interface of MP700968 millivolt meter.

Chapter 4 Specification

Introduce the specifications of MP700968 millivolt meter in detail.

Note: This manual is correct at time of printing and Multicomp-pro reserve the right to modify the content without notice at any time in line with product development, modification or changes in standards or legislation.

Content

Chapter 1 Quick Start

Prepare to use AC Millivolt Meter

1.1 Check-up the meters and accessories

Check whether the meter and accessories are complete and ready. If the package is badly damaged, please keep it until the meter passes the performance testing.

1.2 Operation conditions

To guarantee the safe and stable operation, meters should be used in these conditions:

1.2.1 Environment:

Temperature: 0℃ ~ +40℃

Relevant Humidity: 40℃ (20~90)%

Air Pressure: 86kPa~106kPa

1.2.2 Power supply:

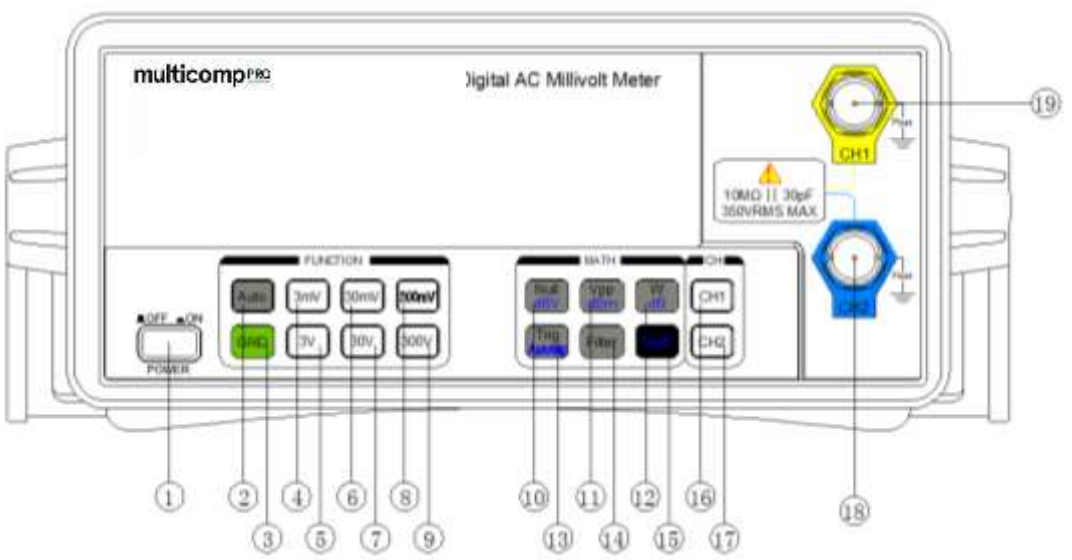
Frequency: 50Hz (1±5%)

Voltage: 230V (1±10%)

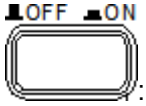
Power consumption: 15VA

Warning: To ensure users safety, three-core mains socket with grounding wire must be used.

Front panel and Rear panel



1.3 Front panel

(1) 

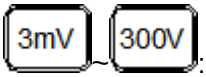
: Power ON/OFF

(2) 

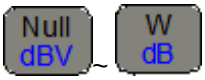
: Press it to switch to the automatic mode to choose the range. In auto mode, when the input signal is higher 10% than the current range, it will increase the range automatically; when the input signal is less 9% than the current range, it will decrease the range automatically.

(3) 

: Change the float ground status of input channel. Usually the input channel of meter is in float ground state in default. Press this key, meter will be connected to ground through 1MΩ impedance and enter into grounding state.

(4)~ (9) 

: switch and display range at Manual mode, users can only select one of six keys every time.

(10)~ (12) 

: Mathematics keys.

(13) 

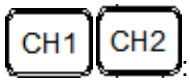
: single trigger or auto trigger

(14) 

: To start the filter function, and display readings with 5 digits.

(15) 

: The shift key

(16)~ (17) 

: To select the input channel, users can only select one of two keys.

CH1 will be selected when press CH1 and CH2 will be selected when press CH2

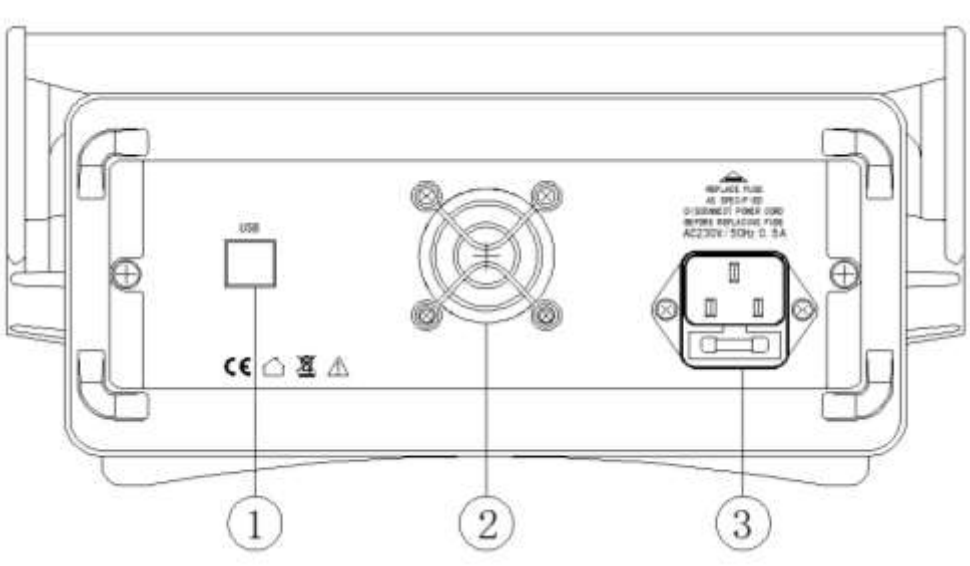
(18) 

: CH1 input interface

(19) 

: CH2 input interface

1.4 Rear panel



(1) USB interface

(2) Fan

(3) Power socket: 230V/50Hz 0.5A, with fuse and backup fuse.

Chapter 2 Basic Operation

2.1 Power on

Press the Power ON/OFF button on the front panel, the meter will enter the initial state.

2.2 Warm up

Warm up at least 30 minutes if need a precise measurement.

2.3 Select input channel, range and display unit

2.3.1 Press CH1 key, select the first line of display and set the relative parameter.

2.3.2 Press 3mV ~ 300V to select the range by manual. Press Auto to select the automatic measurement range.

2.3.3 Press Null dBV Vpp dBm W dB to select Null, Vpp or W Math function. Press Shift, and then press the above keys again to select dBV, dBm or dB math function. Default unit is dBV. If select dBm or W function, resistance 600Ω or 50Ω will blink and user can switch resistance value during blink, the result will display after 2s blink.

a. dBV =20*log10(Vin)

b. dBm=10*log(Vin²/r*1000) r=50Ω or 600Ω

c. dB=20*log(Vin/Vref) Vref=1V

d.W= Vin²/r r=50Ω or 600Ω e.Vpp=2.828 Vin.

f.Null Set the current display value to 0.

2.3.4: Trig Autotrig Single trigger function can be selected. Press Shift then press Trig Autotrig to select the auto trigger function.

2.3.5: Filter Default is 3½ mode after powering on. Press Filter to enable filter function and switch to 4½ mode. Press it again to return to 3½ mode.

2.3.6 Press CH2 key to select the second line of the display and set the relevant parameters according to the way of 2.3.1

Chapter 3 Programmable Interface

USB interface

3.1 Interface performance

It uses USB to serial port way, USB2.0 compatible, which conforms to EIA-232 Standards.

3.1.1 Transmission rate: 9600bits/s

3.1.2 Interface connection: standard USB connection

3.2 Interface parameters

Interface parameters

Baud rate	Word length	Check	Stop bit
9600	8	No check (n)	1

3.3 Programmable Commands

The programmable commands with end character are written into PC software and it's no need for user to input these commands manually. For detail, please refer to the PC Software on the CD.

Note: If users will write their own application, make sure to add the end character 'Chr(10)' at the end of each command.

Chapter 4 Specification

4.1 Measurement range: 50μV～300V

4.2 Range: 3mV, 30mV, 300mV, 3V, 30V, 300V

4.3 Frequency Range: 5Hz～6MHz

4.4 Measuring error for voltage: (23±5℃)

Frequency range	Error
≥5Hz~100Hz	±2.5% reading ±0.8% range
>100Hz~500kHz	±1.5% reading ±0.5% range
>500kHz~2MHz	±2% reading ±1% range
>2MHz~3MHz	±3% reading ±1% range
>3MHz~5MHz	±4% reading ±2% range
>5MHz~6MHz	±5% reading ±4% range

4.5 Resolution

	$3^1/_2$ digits		$4^1/_2$ digits	
Range	Full-scale	resolution	Full-scale	resolution
3mV	3.000mV	0.001mV	3.0000mV	0.0001mV
30mV	30.00mV	0.01mV	30.000mV	0.001mV
300mV	300.0mV	0.1mV	300.00mV	0.01mV
3V	3.000V	0.001V	3.0000V	0.0001V
30V	30.00V	0.01V	30.000V	0.001V
300V	300.0V	0.1V	300.00V	0.01V

4.6 Math Function

	MP700968
dBV	-86~50dBV
Vpp	141μV_{PP}~848V_{PP}
dBm	-73~62.55dBm (50Ω)
	-84~51.76dBm (600Ω)
W	0.05nW~1800W (50Ω)
	0.00417nW~150W (600Ω)

4.7 Input Impedance: 10MΩ±1%

4.8 Input Capacitance: ≤30pF

4.9 Maximum undamaged input voltage

Model	Range	Input Voltage	Input Frequency	Max Undamaged Input Voltage
MP700968	3mV	≤300mV	5Hz-1kHz	350Vrms
	30mV		1kHz-10kHz	35Vrms
	300mV		10kHz-6MHz	10Vrms
	3V 30V	0.3V-7V	5Hz-6MHz	350Vrms
	30V 300V	7V-300V	5Hz-100kHz	350Vrms

4.10 Warm up: 30 minutes

4.11 Power Supply: Frequency: 50 (1±5%) Hz Voltage: 230(±10%)V

4.12 Power Consumption: 15VA

4.13 Environment requirement:

Temperature: 0℃～ +40℃, Relative humidity: 40℃ (20～90)%, Air pressure: 86kPa～106kPa

4.14 Dimensions: 106mm×256mm×386mm

4.15 Weight: 3.9kg

INFORMATION ON WASTE DISPOSAL FOR CONSUMERS OF ELECTRICAL & ELECTRONIC EQUIPMENT.

When this product has reached the end of its life it must be treated as Waste Electrical & Electronic Equipment (WEEE). Any WEEE marked products must not be mixed with general household waste, but kept separate for the treatment, recovery and recycling of the materials used. Contact your local authority for details of recycling schemes in your area.

Made in China
LS12 2QQ
PO Box 13362 Dublin 2