

Introduction

This range smart multimeters have been designed as a higher stable, higher reliable, and with excellent accurate A/D converter as the core for large scale integrated circuit to ensure this range meters to measure AC/DC Voltage, Resistance, Capacitance, Frequency, Diode Test, Continuity and Temperature. To fully utilize this meter, please keep this manual for reference carefully.

Specification

Model No.			28D	28E
Display Count			6000	6000
Function	Range	Resolution	Accuracy	
DC Voltage	6.000V	0.001V	±(0.5%+3d)	√
	60.00V	0.01V	±(0.5%+3d)	√
	600.0V	0.1V	±(0.5%+3d)	√
AC Voltage	6.000V	0.001V	±(1.0%+3d)	√
	60.00V	0.01V	±(1.0%+3d)	√
	600.0V	0.1V	±(1.0%+3d)	√
Resistance	600.0Ω	0.1Ω	±(0.8%+3d)	-
	6000Ω	1Ω	±(0.8%+3d)	√
	6.000KΩ	0.001KΩ	±(0.8%+3d)	-
	60.00KΩ	0.01KΩ	±(0.8%+3d)	√
	600.0KΩ	0.1KΩ	±(0.8%+3d)	√
	6.000MΩ	0.001MΩ	±(0.8%+3d)	√
	10.00MΩ	0.01MΩ	±(1.5%+3d)	√
	60.00MΩ	0.01MΩ	±(1.5%+3d)	-
Capacitance	10.00nF	0.01nF	±(4%+25d)	-
	100.0nF	0.1nF	-	√
	1.000uF	0.001uF	-	√
	10.00uF	0.01uF	±(4%+15d)	-
	100.0uF	0.1uF	-	√
	1.000mF	0.001mF	-	√
	10.00mF	0.01mF	±(5%+25d)	-
Frequency	100.0Hz	0.1Hz	±(0.1%+2d)	√
	1000Hz	1Hz	±(0.1%+2d)	√
Temperature °C/°F	-20°C ~ 50°C	1°C	±(2.0%+3d)	-
	-4°F ~ 122°F	1°F	±(2.0%+3d)	-
Continuity				√
Diode				-
Automatic Identification Function				√
True RMS				-
NCV Detection				-
LINE Tester				√
Date Hold				√
Auto Power Off				√
Low Voltage Indication				√
Icon Display				√
Overload Display				OL
Range Shift			Intelligent	Intelligent
Sampling Rate			2 times/sec.	
Dimension			128×70×16mm	
Product Weight(With Battery)			103g	
Safety Rate			CAT III 600V	
Working Environment			Temperature: 0~40°C, Humidity <80%RH	
Storage Environment			Temperature: -10~60°C, Humidity 70%RH	
Power Supply			1.5V AAAX2	

Functional Keys

	<b>Press and hold to power on / power off the meter</b> After about 6 minutes 28D will be automatically power off; after about 15 minutes 28E will be automatically power off
<b>LIVE</b>	<b>Automatic identification function / LIVE function shift Key</b> Press this key to activate automatic identification or LIVE function
<b>Hz</b>	<b>ACV / Hz shift key</b> Under ACV measurement and after LCD displays ACV values, press this key to activate Hz measurement
<b>D.H</b>	Press this key, the meter display the data hold value.
<b>SEL</b>	<b>Manual function shift key</b> Press this key to shift the functions from Auto Identification Function → DCV → ACV →  →  → Capacitance → °C → °F
<b>NCV</b>	Hold press this key to enter NCV mode, and keep holding this key, otherwise exit NCV mode

Measurement Operation

DC/AC Voltage

- Automatic identification of AC/DC voltage
- The threshold voltage of 28D is DCV 0.5V/ACV 1V; and the threshold voltage of 28E is DCV 0.5V, only the measured voltage is over above mentioned threshold voltage, the meters can display the values.
- Use the red/black test lead to contact the circuit of under measurement
- Read the voltage values in LCD

Note:

Lightly press SEL key of 28E to shift DCV or ACV, the measuring range is

DCV:0.001V~600.0V ACV:0.005V~600.0V

Resistance

- Automatic identification of resistance measurement
- Use the red/black test lead to measure the resistance of circuit under test
- Read the resistance value in LCD

Continuity Test

- Automatic identification of continuity measurement
- Use the red/black test lead to contact the both terminals of circuit under test
- Once resistance less than 50Ω, the buzzer will be sounded continuously

Diode Test (Only 28E)

- Press SEL key to shift function
- Place the red test lead on the anode of diode and black test lead on the cathode of diode
- Read the measured diode value in LCD (unit V)

Capacitance Measurement (Only 28E)

- Slightly press the SEL to shift nF function
- Place the red test lead on the anode of capacitor and black test lead on the cathode of capacitor
- Read the measured value in LCD
- To improve the accuracy of measurement on small capacitor, subtract the residual capacitance of the meter and test leads

Temperature Measurement (Only 28E)

- Slightly press the SEL to shift °C / °F function
- LCD Display the value of environmental temperature.
- Cold end compensation circuit used to measure the temperature is placed inside the front of meters, since the good sealing of meters, it takes time to achieve thermal balance with the measuring environment, so place the meters among the measuring environment for a longer time to get a more accurate reading

Frequency Measurement (Only 28D)

- The threshold frequency is 40Hz, only can measure over 40Hz frequency
- Place the red/black to measure the frequency value of under tested circuit
- After LCD display AC voltage, shortly press Hz key to enter frequency measurement
- Read the measured value in LCD

NCV Measurement (Only 28E)

- Hold press NCV key to enter NCV detection mode and LCD display "EF" icon
- Approach the top part of meter with the circuit under test, the indicating LED will be flashed and audible signal will be sounded once detecting the voltage, the signal strength showed in LCD display

Note

- \* The detection result is for reference, do not determine the voltage by NCV detection ONLY.
- \* Detection may interfere by socket design, insulation thickness and other variable conditions.
- \* The external interference sources, such as flashlight, motor, etc, may cause the wrong detection.

LIVE Wire Identification (Only 28D)

- Slight press LIVE key to enter live line identification mode, and LCD display "EF" icon
- Place red test line tip to contact AC voltage, and black test lead kept unused
- Once meter makes alarm sound and LCD shows "LIVE" icon, means the line under test is live wire

Note

- \* When the circuit is in serious leakage (approx. over 15V), the red test lead even contact earth line, the buzzer of meter will be sounded and LED will be flickered.
- \* Detection may interfere by socket design, insulation thickness and other variable conditions.
- \* The external interference sources, such as flashlight, motor, etc, may cause the wrong detection.