ANENG AN860B+

ANENG AN860B+ Digital Multimeter User Manual

Model: AN860B+

1. Introduction

The ANENG AN860B+ is an auto-ranging digital multimeter designed for precise electrical measurements. It utilizes a double-integral style A/D transform as its core, providing stable function and high reliability. This device is capable of measuring AC/DC Voltage, AC/DC Current, Resistance, Capacitance, Diode, Continuity, Temperature, and Frequency. It is battery-powered and features overload protection and a clear LCD display, making it suitable for various applications.

Key Features:

- Auto/Manual Ranging
- True RMS Measurement
- 550V Protection in Resistance and Capacitance Ranges
- Large LCD Display with Backlight
- Maximum Display: 6000 Counts
- Sample Rate: 3 times per second
- MAX/MIN Data Hold
- Polarity Identification
- Low Voltage Indication
- 20A High Current Measurement Capability
- Automatic Power Off (can be manually cancelled)

2. Safety Information

To ensure safe operation and to avoid damage to the meter, please read this manual carefully before use. Observe all warnings and precautions.

- Always ensure the test leads are properly connected and the function switch is set to the correct range before making any measurements.
- Do not apply voltage or current that exceeds the maximum specified limits for the meter.
- Exercise extreme caution when working with voltages above 30V AC RMS, 42V peak, or 60V DC. Such voltages pose a shock hazard.
- Before measuring current, ensure the circuit is de-energized and the meter is connected in series with the load.

- Never measure resistance, continuity, or diode on a live circuit.
- Replace batteries immediately when the low battery indicator appears to ensure accurate readings.
- Do not operate the meter if it appears damaged or if the test leads are damaged.
- Adhere to local and national safety codes.

3. Product Overview

The ANENG AN860B+ Digital Multimeter features a robust design with a clear LCD display and intuitive controls.

Figure 1: Front view of the ANENG AN860B+ Digital Multimeter, showing the display, function dial, and input jacks.

3.1. Display

The large LCD provides clear readings, even in varying light conditions, thanks to its backlight feature. It can display up to 6000 counts.

Figure 2: Close-up of the multimeter's display, illustrating its clarity and backlight functionality for visibility in various lighting conditions.

3.2. Controls and Input Jacks

- **Function Dial:** Used to select the desired measurement mode (Voltage, Current, Resistance, etc.).
- **RANGE Button:** Toggles between auto-ranging and manual ranging.
- **RELA Button:** Activates relative measurement mode.
- **MAX/MIN Button:** Records and displays maximum and minimum values during a measurement.
- **Hz % Button:** Selects frequency or duty cycle measurement.
- **HOLD/⁂ Button:** Freezes the current display reading; long press activates the backlight.
- **SELECT Button:** Toggles between different measurement types within a single dial position (e.g., AC/DC voltage, Diode/Continuity).
- **V⁂Hz% Input Jack:** For voltage, frequency, and resistance measurements.
- **mA⁂uA Input Jack:** For milliampere and microampere current measurements (600mA FUSED).

- **20A Input Jack:** For high current measurements up to 20A (20A FUSED).
- **COM Input Jack:** Common terminal for all measurements (negative lead).

4. Setup

4.1. Battery Installation

The ANENG AN860B+ requires two 1.5V AA batteries for operation. To install or replace batteries:

1. Ensure the multimeter is turned OFF.
2. Locate the battery compartment on the back of the unit.
3. Use a screwdriver to open the battery compartment cover.
4. Insert two 1.5V AA batteries, observing the correct polarity (+ and -).
5. Replace the battery compartment cover and secure it with the screw.

4.2. Connecting Test Leads

Always connect the test leads correctly for the desired measurement.

- For most measurements (Voltage, Resistance, Capacitance, Diode, Continuity, Frequency, Temperature): Insert the **red** test lead into the **V⁂Hz%** jack and the **black** test lead into the **COM** jack.
- For current measurements up to 600mA: Insert the **red** test lead into the **mA⁂uA** jack and the **black** test lead into the **COM** jack.
- For current measurements up to 20A: Insert the **red** test lead into the **20A** jack and the **black** test lead into the **COM** jack.

5. Operating Instructions

This section details how to perform various measurements with your ANENG AN860B+ multimeter.

5.1. Automatic Ranging

The multimeter features an automatic ranging function, simplifying operation by automatically selecting the appropriate measurement range. This is indicated by 'AUTO' on the display.

Figure 3: The multimeter highlighting its automatic ranging capability for various measurements like voltage, resistance, capacitance, and current.

5.2. Measuring DC/AC Voltage (V⁂ / V⁂)

1. Set the function dial to the **V⁂** (DC Voltage) or **V⁂** (AC Voltage) position. Use the **SELECT** button to toggle if needed.
2. Connect the red test lead to the **V⁂Hz%** jack and the black test lead to the **COM** jack.
3. Connect the test probes in parallel to the circuit or component you wish to measure.
4. Read the voltage value on the display.

5.3. Measuring DC/AC Current (A⁂ / A⁂)

1. Set the function dial to the appropriate current range (**mA⁂uA** or **20A**). Use the **SELECT** button to toggle between AC and DC current.
2. Connect the red test lead to the **mA⁂uA** or **20A** jack and the black test lead to the **COM** jack.
3. **Important:** De-energize the circuit. Open the circuit where you want to measure current and connect the multimeter in series.
4. Re-energize the circuit and read the current value on the display.

5.4. Measuring Resistance (Ω)

1. Set the function dial to the **Ω** position.
2. Connect the red test lead to the **V⁂Hz%** jack and the black test lead to the **COM** jack.
3. Ensure the circuit is de-energized. Connect the test probes across the component to measure its resistance.
4. Read the resistance value on the display.

5.5. Measuring Capacitance (––|–)

1. Set the function dial to the **––|–** position.
2. Connect the red test lead to the **V⁂Hz%** jack and the black test lead to the **COM** jack.
3. Ensure the capacitor is fully discharged before connecting the test probes.
4. Connect the test probes across the capacitor.
5. Read the capacitance value on the display.

5.6. Diode Test (––|–) and Continuity Test (⁂)))

1. Set the function dial to the **––|–** position. Use the **SELECT** button to toggle between Diode and Continuity modes.
2. Connect the red test lead to the **V⁂Hz%** jack and the black test lead to the **COM** jack.
3. **For Diode Test:** Connect the red probe to the anode and the black probe to the cathode of the diode. The display will show the forward voltage drop. Reverse the probes; the display should show 'OL' (Open Line) for a good diode.
4. **For Continuity Test:** Connect the probes across the circuit or component. A continuous beep indicates a low resistance path (continuity). The display will show the resistance value.

5.7. Measuring Temperature (˚C/˚F)

1. Set the function dial to the **˚C/˚F** position.
2. Connect the temperature probe (thermocouple) to the **V⁂Hz%** and **COM** jacks, observing polarity.
3. Place the tip of the temperature probe on or near the object whose temperature you wish to measure.
4. Read the temperature value on the display.

5.8. Measuring Frequency (Hz) and Duty Cycle (%)

1. Set the function dial to the **Hz %** position. Use the **Hz %** button to toggle between frequency and duty cycle.

2. Connect the red test lead to the **V⁂Hz%** jack and the black test lead to the **COM** jack.
3. Connect the test probes in parallel to the signal source.
4. Read the frequency or duty cycle value on the display.

6. Maintenance

6.1. Battery Replacement

When the low battery indicator appears on the display, replace the batteries as described in the Setup section (4.1). Always use two new 1.5V AA batteries.

6.2. Cleaning

To clean the multimeter, wipe the case with a damp cloth and a mild detergent. Do not use abrasives or solvents. Ensure the meter is completely dry before use.

6.3. Fuse Replacement

The multimeter is protected by internal fuses. If the current measurement function stops working, the fuse may need replacement. Fuse replacement should only be performed by qualified personnel. Refer to the specifications for fuse ratings.

7. Troubleshooting

- **No display or faint display:** Check battery installation and replace batteries if necessary.
- **'OL' displayed:** Indicates an over-range condition or an open circuit. Check connections and ensure the measured value is within the selected range.
- **Incorrect readings:** Ensure test leads are properly connected, the function dial is set to the correct measurement, and batteries are not low.
- **Current measurement not working:** Check the fuse. If blown, replace with a fuse of the correct rating.

8. Specifications

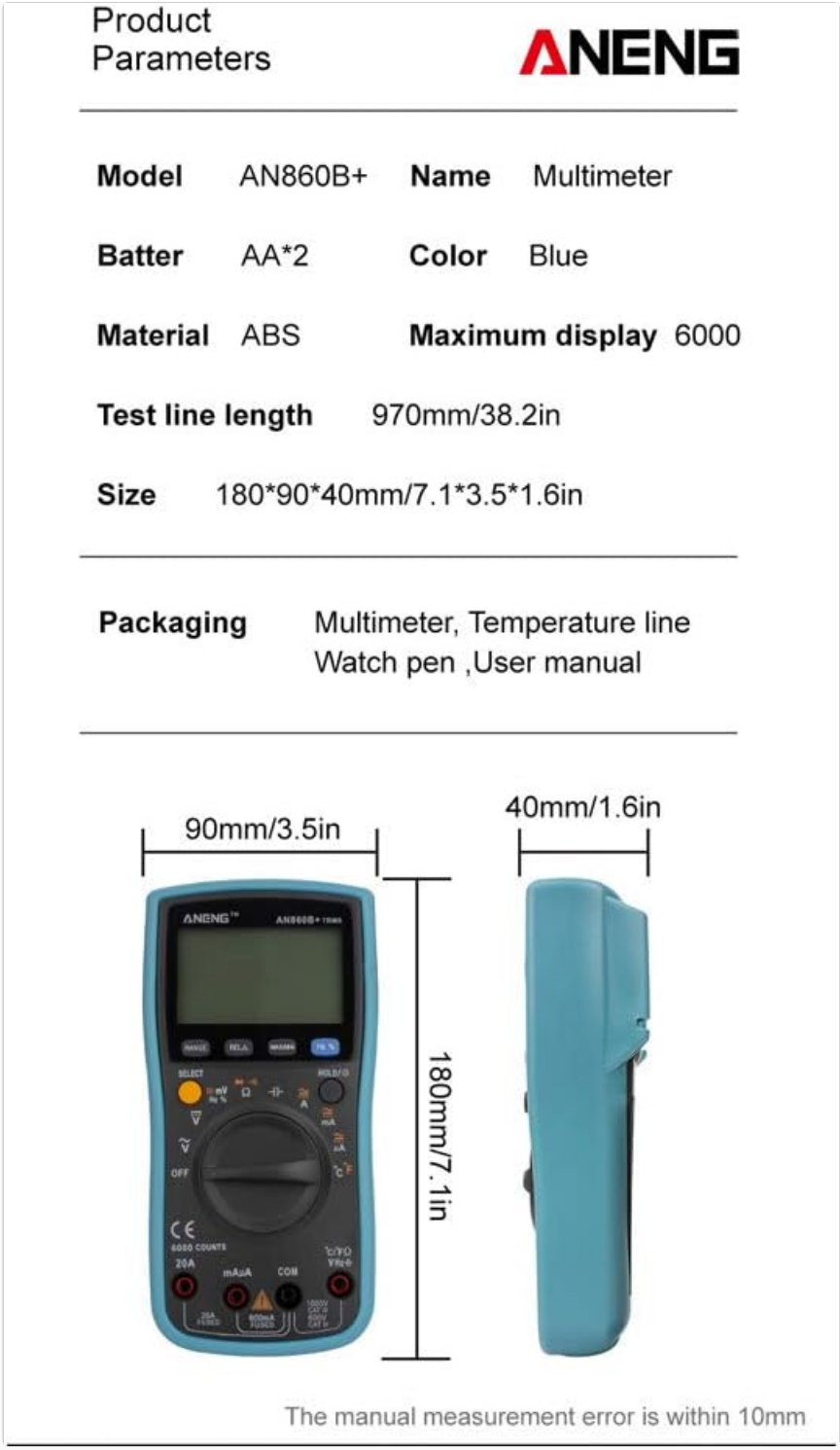


Figure 4: Product parameters and dimensions of the ANENG AN860B+ Digital Multimeter.

Measurement Function	Range	Accuracy
DC Voltage	600mV / 6V / 60V / 600V / 1000V	(0.5% + 3)
AC Voltage	600mV / 6V / 60V / 600V / 750V	(1.0% + 3)
DC Current	600uA / 6000uA / 60mA / 600mA / 20A	(1.5% + 3)
AC Current	600uA / 6000uA / 60mA / 600mA / 20A	(1.5% + 3)
Resistance	600Ω / 6KΩ / 60KΩ / 600KΩ / 6MΩ / 60MΩ	(0.5% + 3) to (1.5% + 3)

Measurement Function	Range	Accuracy
Capacitance	10nF / 100nF / 1uF / 10uF / 100uF / 1000uF / 10000uF	(2.0% + 5) to (5.0% + 20)
Frequency	5Hz / 50Hz / 500Hz / 5kHz / 50kHz / 500kHz / 5MHz / 20MHz	(0.1% + 3)
Temperature	400˚C / 752˚F	(1.0% + 5) to (1.5% + 15)
Duty Cycle	1% to 99%	(1%)

General Specifications:

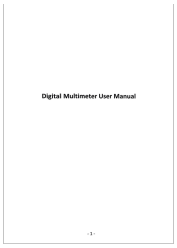
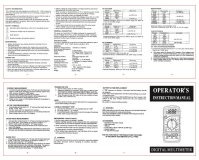
- **Measurement Mode:** Double-integral style A/D transform
- **Over Range Indication:** OL
- **Working Environment:** 0–40˚C, relative humidity <80%
- **Supply Power:** 3V (2 x 1.5V AA Battery, not included)
- **Dimension:** 180 x 90.5 x 45 mm (7.1 x 3.5 x 1.8 inches)
- **Weight:** 450g
- **Maximum Display:** 6000 Counts
- **Test Line Length:** 970mm / 38.2in
- **Packaging Includes:** Multimeter, Temperature line, Test leads (Watch pen), User manual

9. Warranty and Support

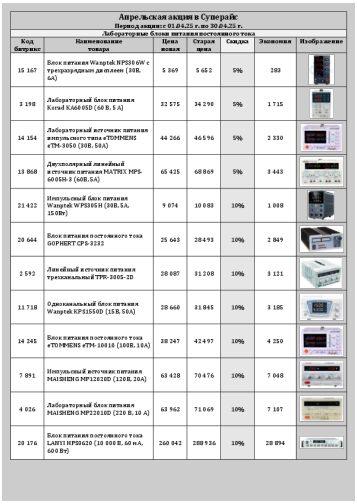
This product is typically covered by a standard manufacturer's warranty against defects in materials and workmanship. For specific warranty details, please refer to the documentation provided with your purchase or contact the retailer. For technical support or service inquiries, please reach out to the product's point of purchase or the manufacturer's customer service channels.

Related Documents - AN860B+

	ANENG 683 Touch Meter User Manual: Features, Specs & Operation Guide Comprehensive user manual for the ANENG 683 digital multimeter. Covers safety, specifications, measurement functions (voltage, current, resistance, etc.), and operational guidance for electrical testing.

	ANENG 616 Digital Intelligent Multimeter: Operating Instructions and Specifications Comprehensive operating instructions and detailed specifications for the ANENG 616 digital intelligent multimeter. Learn how to measure voltage, current, resistance, capacitance, frequency, and temperature safely and effectively.
	ANENG ST183 Digital Clamp Meter User Manual - Specifications and Instructions Comprehensive user manual for the ANENG ST183 Digital Clamp Meter, detailing its specifications, safety precautions, operating instructions for various measurements (voltage, current, resistance, capacitance, frequency, NCV), maintenance, and troubleshooting.
	ANENG AL01 Inductance Digital Multimeter User Manual User manual for the ANENG AL01 Inductance Digital Multimeter, featuring 6000 Counts, True-RMS AC/DC voltage and current measurement, and inductance testing for professional electricians.
	Smart Meter User Manual - ANENG 681 Digital Multimeter Guide Comprehensive user manual for the ANENG 681 Smart Meter, a 3 5/6 digital multimeter. Covers safety information, component descriptions, specifications, test ranges, operation instructions, and maintenance.
	ANENG AN8205C Digital Multimeter Operator's Instruction Manual Comprehensive operator's instruction manual for the ANENG AN8205C Digital Multimeter, covering safety information, specifications, operating instructions for various measurements, and maintenance.

Documents - ANENG – AN860B



Апрельская акция в Суперайс
Период акции: с 01.04.25 г. по 30.04.25 г.
Лабораторные блоки питания постоянного тока

Код батареи	Наименование товара	Цена новая	Старая цена	Скидка	Экономия	Изображение
15 167	Блок питания Wanptek NPS806W с трехразрядным дисплеем (30В, 6А)	5 369	5 652	5%	283	
3 198	Лабораторный блок питания Korad KA6005D (60 В, 5 А)	32 575	34 290	5%	1 715	
14 154	Лабораторный источник питания импульсного типа «TOMMENS eTM-3050 (30В, 50А)	44 206	46 596	5%	2 330	
13 868	Двухполярный линейный источник питания MATRIX MPS-6005H-3 (60В, 5А)	65 425	68 869	5%	3 443	
21 422	Импульсный блок питания Wanptek WPS305N (30В, 5А, 150Вт)	9 074	10 083	10%	1 008	
20 644	Блок питания постоянного тока GOPHERT CPS-3232	25 643	28 493	10%	2 849	
2 592	Линейный источник питания трехканальный TPR-3005-2D	28 687	31 208	10%	3 121	
11 718	Одноканальный блок питания Wanptek KPS1550D (15В, 50А)	28 660	31 845	10%	3 185	
14 245	Блок питания постоянного тока «TOMMENS eTM-10018 (100В, 18А)	38 247	42 497	10%	4 250	
7 891	Импульсный источник питания MAISHENG MP12020D (120В, 20А)	63 428	70 476	10%	7 048	
4 026	Лабораторный блок питания MAISHENG MP2010D (210 В, 10 А)	63 962	71 069	10%	7 107	
20 176	Блок питания постоянного тока LANYI NPS3620 (10 000 В, 60 мА, 600 Вт)	260 042	288 936	10%	28 894	

[Апрельская распродажа электроники в Суперайс: Блоки питания, микроскопы, осциллографы и другое]

Специальные предложения на лабораторные блоки питания, программируемые источники питания, AC-DC блоки питания, микроскопы, осциллографы, генераторы сигналов, мультиметры, паяльные станции и другое оборудование. Акция с 1 по 30 апреля 2025 г. от Суперайс.

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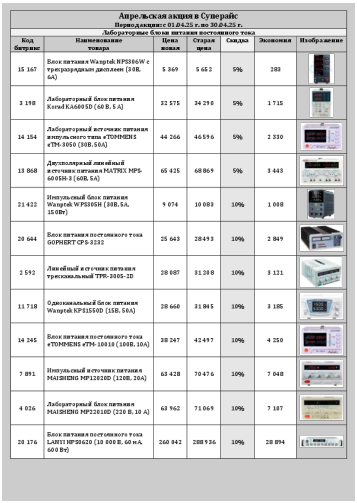

Апрельская акция в Суперайс
Период акции: с 01.04.25 г. по 30.04.25 г.
Лабораторные блоки питания постоянного тока

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15 167	Блок питания Wanptek NPS806W с трехразрядным дисплеем (30В, 6А)	5 369	5 652	5%	283	
3 198	Лабораторный блок питания Korad KA6005D (60 В, 5 А)	32 575	34 290	5%	1 715	
14 154	Лабораторный источник питания импульсного типа «TOMMENS eTM-3050 (30В, 50А)	44 206	46 596	5%	2 330	
13 868	Двухполярный линейный источник питания MATRIX MPS-6005H-3 (60В, 5А)	65 425	68 869	5%	3 443	
21 422	Импульсный блок питания Wanptek WPS305N (30В, 5А, 150Вт)	9 074	10 083	10%	1 008	
20 644	Блок питания постоянного тока GOPHERT CPS-3232	25 643	28 493	10%	2 849	
2 592	Линейный источник питания трехканальный TPR-3005-2D	28 687	31 208	10%	3 121	
11 718	Одноканальный блок питания Wanptek KPS1550D (15В, 50А)	28 660	31 845	10%	3 185	
14 245	Блок питания постоянного тока «TOMMENS eTM-10018 (100В, 18А)	38 247	42 497	10%	4 250	
7 891	Импульсный источник питания MAISHENG MP12020D (120В, 20А)	63 428	70 476	10%	7 048	
4 026	Лабораторный блок питания MAISHENG MP2010D (210 В, 10 А)	63 962	71 069	10%	7 107	
20 176	Блок питания постоянного тока LANYI NPS3620 (10 000 В, 60 мА, 600 Вт)	260 042	288 936	10%	28 894	

[Electronic Test Equipment Catalog - Power Supplies, Oscilloscopes, and More]

A catalog featuring a wide range of electronic test and measurement equipment, including power supplies, oscilloscopes, multimeters, soldering stations, and accessories from various manufacturers. Details product models, specifications, and associated data.

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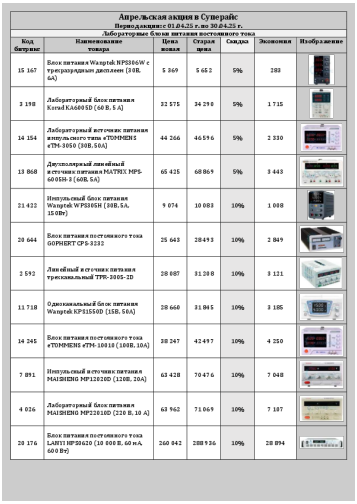

Апрельская акция в Суперайс

Период акции: с 01.04.25 г. по 30.04.25 г.

Лабораторные блоки питания постоянного тока

Код товара	Наименование товара	Цена новая	Старая цена	Скидка	Экономия	Изображение
15 167	Блок питания Wanptek NPS306W с трехразрядным дисплеем (30В, 6А)	5 369	5 652	5%	283	
3 198	Лабораторный блок питания Korad KA6005D (60 В, 5 А)	32 575	34 290	5%	1 715	
14 154	Лабораторный источник питания импульсного типа «TOMMENS eTM-1050 (30В, 50А)	44 206	46 596	5%	2 330	
13 868	Двухполярный линейный источник питания MATRIX MPS-6005H-3 (60В, 5А)	65 425	68 869	5%	3 443	
21 422	Импульсный блок питания Wanptek WPS305N (30В, 5А, 150Вт)	9 074	10 083	10%	1 008	
20 644	Блок питания постоянного тока GOPHERT CPS-3202	25 643	28 493	10%	2 849	
2 592	Линейный источник питания трехканальный TPR-3005-2D	28 687	31 288	10%	3 121	
11 718	Одноканальный блок питания Wanptek KPS1550D (15В, 50А)	28 660	31 845	10%	3 185	
14 245	Блок питания постоянного тока «TOMMENS eTM-10018 (180В, 10А)	38 247	42 497	10%	4 250	
7 891	Импульсный источник питания MAISHENG MP1202OD (120В, 20А)	63 428	70 476	10%	7 048	
4 026	Лабораторный блок питания MAISHENG MP2010D (210 В, 10 А)	63 962	71 069	10%	7 107	
20 176	Блок питания постоянного тока LABTI HPS3620 (10 000 В, 60 мА, 600 Вт)	260 042	288 936	10%	28 894	

[Апрельская акция в Суперайс: Скидки на электронику и оборудование]

Каталог товаров Суперайс с акционными ценами на лабораторные блоки питания, микроскопы, осциллографы, паяльные станции и другое оборудование. Скидки действуют с 1 по 30 апреля 2025 года.

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